

Research Paper

Physiotherapists' Pain Beliefs and Treatment Selection for Low Back Pain: A Cross-sectional Study

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ABSTRACT**Objectives:** This study assesses the knowledge, attitudes and beliefs of physiotherapists regarding non-specific chronic low back pain (NSCLBP) and explores their impact on treatment selection, ultimately enhancing quality outcomes.**Methods:** A total of 107 participants were involved in the study. The questionnaire comprised three sections: Demographic information, evaluation of participants' pain beliefs and attitudes using the pain attitudes and beliefs scale for physiotherapists scale and frequently employed treatment selection and plans for managing NSCLBP. The questionnaire was distributed via e-mail, WhatsApp and social media platforms using Google Forms.**Results:** Responses were gathered from 107 physiotherapists in India through the Google Form. Treatment orientation revealed 43.4% biomedical and 30.7% bio-psychosocial approaches.**Discussion:** The predominant orientation of physiotherapists in India leans towards biomedical aspects in their attitudes and beliefs.*** Corresponding Author:****Naveen Kumar. I, Assistant Professor.****Address:** Department of Physiotherapy, Faculty of Allied Health and Basic Sciences, Sri Devaraj URS Academy of Higher Education and Research, Kolar, India.**Tel:** +91 (90) 42633619**E-mail:** naveenk.inba@gmail.com

Highlights

- This investigation assesses the knowledge, attitudes and beliefs held by physiotherapists concerning non-specific chronic low back pain (NSCLBP) in India.
- The predominant treatment orientation among physiotherapists leans toward biomedical aspects.
- This cross-sectional online survey engaged 107 physiotherapists using a Google Form.
- The outcomes of this research present an opportunity to enhance the quality of treatment results for NSCLBP by addressing and understanding the attitudes and beliefs of physiotherapists toward this condition.

Plain Language Summary

This research assessed the knowledge, attitudes, and beliefs of physiotherapists in India concerning NSCLBP and its influence on treatment selection. The study involved 107 physiotherapists who participated in an online survey encompassing demographic information, an examination of pain beliefs and attitudes using the pain attitudes and beliefs scale for physiotherapists, and insights into treatment selection and plans commonly utilized for NSCLBP management. The findings indicated a prevalent biomedical treatment orientation among physiotherapists in India regarding NSCLBP. This holds significance as it can directly impact the quality of care provided to patients dealing with NSCLBP. An understanding of physiotherapists' attitudes and beliefs towards NSCLBP is crucial for enhancing patient care and outcomes.

Introduction

Chronic low back ache constitutes a significant public health crisis worldwide [1, 2]. It is the leading cause of absenteeism from work and limits participation in daily activities [3–5]. Chronic low back pain (CLBP) is characterized by pain or discomfort in the lower part of the trunk and gluteus region that can sometimes extend to the legs and last for >12 weeks [6]. This type of pain is considered non-specific if the causes cannot be identified. CLBP places a significant financial burden on the healthcare system and patients often feel ignored and misunderstood by healthcare professionals [7, 8].

The biomedical model has been the traditional approach to treating CLBP; however, a recent comprehensive review revealed a negative correlation between this approach and patient education, treatment adherence, and reported work and activity recommendations. Contrastingly, the bio-psychosocial approach underscores the significance of social and psychological factors in the onset and persistence of chronic pain [9–12]. The rehabilitation of individuals dealing with chronic pain is intricately influenced by psychosocial factors, encompassing cognitive, emotional and social aspects [13]. These factors can be divided into work-related and non-

work-related factors and are linked to a higher incidence of chronic pain [14]. Guidelines for clinical practice in the UK and Italy about low back pain recommend the inclusion of psychosocial factors in the comprehensive assessment and treatment of patients grappling with CLBP [15, 16].

Even though the significance of psychosocial factors in addressing CLBP is acknowledged, integrating these elements into clinical practice poses a challenge for some therapists [17]. Individuals experiencing elevated pain-related fears often hold the belief that engaging in physical activity will exacerbate their pain and constrain their daily functioning [18]. Such beliefs have the potential to forecast disability in both daily and occupational activities, impact treatment outcomes, and influence the ability to return to work.

Previous studies reported that the treatment selection for CLBP is not solely influenced by physiotherapists' fear-avoidance beliefs but is instead influenced by various factors, such as their understanding of pain, education, and other individual and environmental factors [19, 20]. Accordingly, this study discerns the beliefs and attitudes of Indian physiotherapists regarding the choice of treatments for low back pain and its correlation with the selected models of pain.

Materials and Methods

Study design

This research adopted a cross-sectional design to evaluate the attitudes and beliefs of physiotherapists concerning non-specific chronic low back pain (NSCLBP). Approval for the study was obtained from the University Ethics Committee.

Sample size

A total of 107 participants were included in the study, selected through a statistical power of 85%, a 95% confidence interval (CI) and a population size of 50 000 people with a margin of error of 10%.

Study participants

The participants comprised intern students and graduated physiotherapists engaged in either clinical settings (such as hospitals, clinics and rehabilitation centers) or academic settings (such as universities and colleges) in India. Intern students were incorporated to explore whether their beliefs about low back pain were formed during their education or post-graduation.

Exclusion criteria

Physiotherapists who were not working in clinical or hospital settings, who had not treated patients with lower back pain for the past 2 years, and who were not exposed to patients with lower back pain were excluded from the study. Similarly, undergraduate students before their internship were also excluded from the study.

Study procedure

The study design was presented in a departmental expert review meeting and comments were obtained for correction. The questionnaire was distributed through a [Google Form](#) to physiotherapist contacts via social media platforms, e-mail, [WhatsApp](#), etc. on 2020/06/20. The description of the study and the patient's consent were included in the [Google Form](#). The participants were given 20 days to respond to the form, and two reminders were sent after 7 days to ensure maximum response. The response to the [Google Form](#) was closed after 20 days (2022/07/10) and the data was extracted from the form in an Excel format for statistical analysis.

Data collection

The [Google Form](#) was structured into three distinct sections as follows:

Demographic information

The demographic information segment encompassed eight items, extracting information about the participant's gender, age, nationality, highest educational level, primary work setting, work category, years of experience, and whether they had received specialized training in treating low back pain.

Physiotherapist pain attitude and belief scale

The physiotherapist pain attitude and belief scale (PABS-PT) as a validated questionnaire was employed to gauge physiotherapists' attitudes and beliefs about pain management. The reliability of the PABS-PT was established through high internal consistency and robust test-retest reliability. Its validity was substantiated by content validity through expert review and construct validity through significant correlations with measures of pain-related fear and disability. Discriminant validity was confirmed through notable differences observed between physiotherapists with varying levels of experience and training [21–23].

In this part, the participants' attitudes toward NSCLBP and their comprehension of pain were assessed using PABS-PT. The PABS-PT instrument comprised 19 items graded on a 6-point Likert scale (ranging from completely agree=1 to entirely disagree=6) and explores two factors as follows: A focus on biomedical treatment and a focus on bio-psychosocial treatment. The maximum total score for the bio-psychosocial treatment orientation was set at 54, while the maximum total score for the entire PABS-PT instrument was 114. Specifically, the biomedical treatment orientation section encompassed 10 questions with a maximum total score of 60 (Table 1).

Treatment selection

The final segment of the questionnaire delved into the most frequently employed physiotherapy treatments for NSCLBP. The provided treatment options encompassed bed rest, lumbar support, electrotherapy (e.g. transcutaneous electrical nerve stimulation, ultrasound, laser), hydrotherapy, hot/cold therapy, spinal traction, spinal mobilization/manipulation, specific back exercises (e.g. strengthening, flexibility, range of motion, etc.), home exercises, physical activity-based interventions (e.g.

Table 1. Pain attitudes and beliefs scale for physiotherapists with 19 items

Classification	Items
Biomedical	Pain is determined by severity of tissue damage.
	Increased pain indicated increased damage.
	Pain is result of nociceptive stimuli and damage.
	The treatment intensity should be modified if the pain escalates in severity.
	If patients report pain during exercise, it is worried that it is due to exercise.
	Only pain free movements should be done during back pain.
	Normal functioning will happen only after pain reduction.
	High risk of long-term restriction avails when back pain is not reduced by therapy.
	Back pain always indicates organic injury.
	High risk of developing spinal impairments is associated with back pain in long run.
Bio-psychosocial	Learning to manage stress results in recovery from back pain.
	Physical exercises benefit patients with severe Back pain.
	The intensity of the next treatment is increased even if the pain worsens.
	Back-straining exercises should not be avoided during therapy.
	Therapy may still be deemed successful even if pain persists.
	The cause of back pain is either unknown or non-existent.
	Functional limitations following back pain can stem from psychosocial factors.
	There is no definitive treatment to eliminate back pain.
	Mental stress can lead to back pain in the absence of tissue damage.

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walking), pain coping skill training, cognitive functional therapy, mechanical diagnosis and treatment (McKenzie Method), treatment-based classification approach and pathoanatomy-based interventions.

Statistical analysis

The data collected via the [Google Form](#) underwent analysis using the SPSS software, version 26. Descriptive statistics were employed to assess participants' characteristics within their responses. The Mean±SD of PABS-PT were computed. The Pearson correlation coefficient was determined to evaluate the relationship between the PABS-PT biomedical and bio-psychosocial subscales. Logistic regression analysis was conducted to identify associations between participant characteristics and PABS-PT scores, treatment selection and PABS-PT

scores and participant characteristics, with a 95% CI. A significance level of $P < 0.05$ was adopted to establish the statistical significance of the results.

Results

The study garnered a total of 107 responses from Indian physiotherapists via a [Google Form](#). The observed treatment orientation revealed 43.4% biomedical and 30.7% bio-psychosocial, indicating a predominant biomedical focus in the clinical practices of physiotherapists in India. Accordingly, bio-psychosocial scores were found to be comparatively low.

Table 2. Participants characteristics (n=107)

Characteristics		No. (%)
Gender	Male	66(61.7)
	Female	41(38.3)
Age (y)	19-23	35(33.6)
	24-28	36(32.9)
	29-35	15(13.3)
	36-49	19(13.75)
	>50	1(0.9)
Education at the highest level	Bachelor's degree	68(60.9)
	Master's degree	36(33.2)
	PhD	3(2.8)
Work setting	Clinical	58(54.2)
	Academic	6(5.6)
	Academic and clinical	26(24.3)
	Unemployed or not given	17(15.9)
Type of work	Full-time	80(74.8)
	Part-time	10(9.3)
	Not applicable or unemployed	17(15.9)
Experience (y)	Intern	20(18.7)
	Freshers with <1	21(19.6)
	1-5	32(29.9)
	6-10	12(11.2)
	>11	22(20.6)
Workshop or special training	Yes	59(55.1)
	No	48(44.9)

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Among the frequently used treatments, electrotherapy (84%), specific back exercises (81%), hot/cold packs (70%), home exercises (63%), lumbar support (62%), spinal mobilization (57%), bed rest (56%), and spinal traction (52%) emerged as the most common. Conversely, pain coping skills (27%), hydrotherapy (24%), pathoanatomic-based classification (9%) and dry needling (2%) were less frequently employed.

In terms of participant characteristics, 61.7% were male, and 38.3% were female. The majority fell within the age range of 24-28 years, with over 60% holding a

bachelor's degree in physiotherapy and 33.2% possessing a master's degree. A significant portion worked in a clinical setting (54.2%), while only 5.6% were in an academic setting. The majority were full-time workers (74.8%), with 29.9% having 1-5 years of experience. More than half had received specialized training or workshops in the treatment of low back pain (Table 2).

The Mean±SD score for biomedical treatment orientation was 43.49±1.3 and the Mean±SD score for bio-psychosocial treatment orientation was 30.7±1.3, resulting in a combined mean score of 74.09 (Table 3). The three

Table 3. Descriptive analysis of pain attitudes and beliefs scale for physiotherapists items, treatment planned by a physiotherapist for NSCLBP

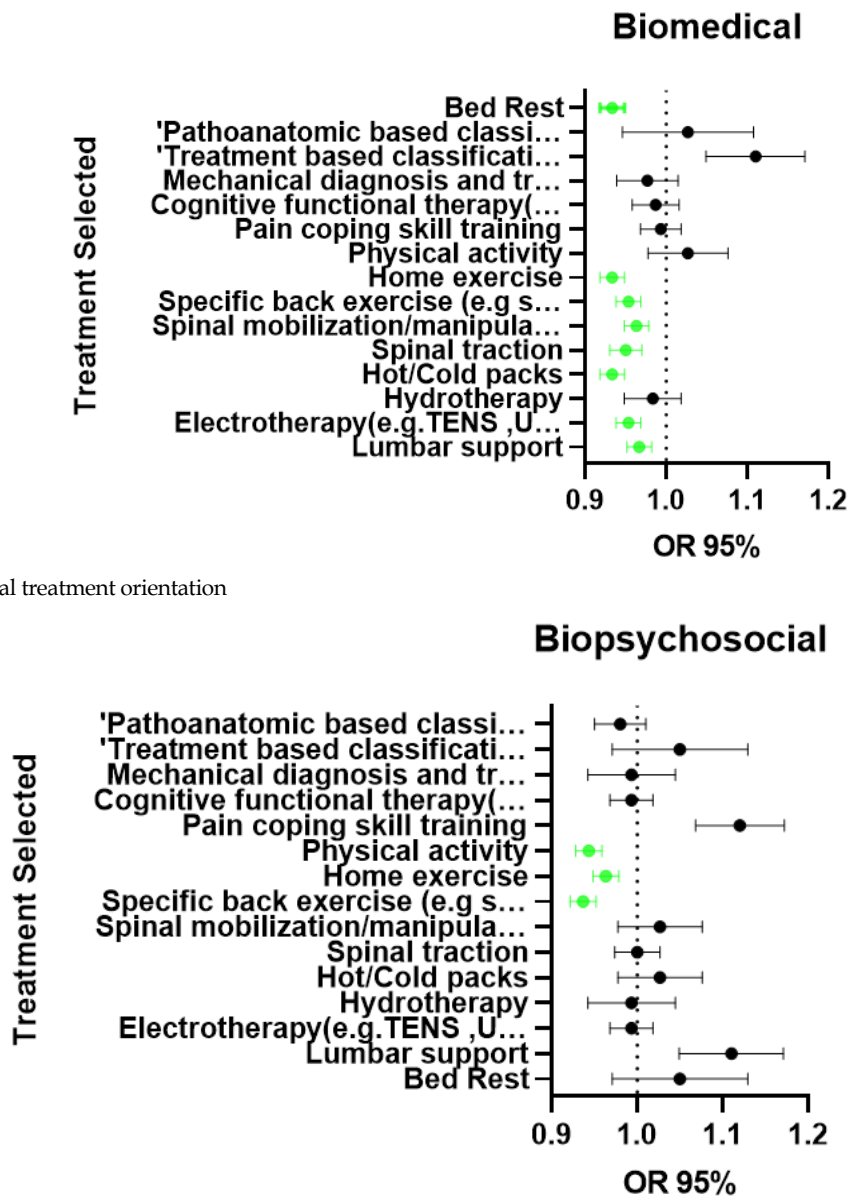
Orientation	Items	No. (%)					
		Completely Disagree	Strongly Disagree	To Some Extent, I Disagree	To A Certain Extent, I Agree	Mostly Agree	Completely Agree
Biomedical	1	9(8.3)	2(1.8)	8(7.3)	31(28.4)	28(25.7)	30(27.5)
	2	5(4.6)	7(6.4)	12(11)	36(33)	20(18.3)	28(25.7)
	3	7(6.4)	3(2.8)	17(15.6)	24(22)	18(16.5)	39(35.8)
	4	6(5.5)	4(3.7)	12(11)	23(21.1)	25(22.9)	38(34.9)
	5	12(11)	10(9.2)	21(19.3)	32(29.4)	14(12.8)	19(17.4)
	6	7(6.4)	10(9.2)	9(8.3)	28(25.7)	21(19.3)	33(30.3)
	7	3(2.8)	3(2.8)	7(6.4)	26(23.9)	27(24.8)	42(38.5)
	8	3(2.8)	7(6.4)	14(12.8)	30(27.5)	19(17.4)	35(32.1)
	9	9(8.3)	13(11.9)	22(20.2)	32(29.4)	10(9.2)	22(20.2)
	10	4(3.7)	8(7.3)	12(11)	33(30.3)	26(23.9)	25(22.9)
Bio-psychosocial	11	6(5.5)	10(9.2)	20(18.3)	38(34.9)	19(17.4)	15(13.8)
	12	4(3.7)	3(2.8)	15(13.8)	34(31.2)	24(22)	28(25.7)
	13	18(16.5)	13(11.9)	34(31.2)	25(22.9)	6(5.5)	12(11)
	14	16(14.7)	14(12.8)	27(24.8)	29(26.6)	8(7.3)	14(12.8)
	15	15(13.8)	13(11.9)	25(22.9)	33(30.3)	10(9.2)	12(11)
	16	31(28.4)	13(11.9)	30(27.5)	22(20.2)	4(3.7)	8(7.3)
	17	12(11)	11(10.1)	27(24.8)	38(34.9)	11(10.1)	9(8.3)
	18	37(33.9)	24(22)	14(12.8)	15(13.8)	2(1.8)	5(4.6)
	19	12(11)	10(9.2)	24(22)	35(32.1)	13(11.9)	14(12.8)

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PABS-PT items with the lowest mean scores pertained to bio-psychosocial treatment orientation. Correlations were identified between physiotherapists' PABS-PT scores and their treatment selection (Tables 4 and 5), indicating that a stronger biomedical orientation led to the use of specialized back exercises, bed rest, lumbar support, electrotherapy, hot/cold packs, spinal traction, and home exercises. Conversely, a stronger bio-psycho-social orientation was associated with greater utilization of targeted back exercises, at-home exercises and activity-based interventions. Further correlations were found between participant characteristics and PABS-PT sub-scores, with interns and graduated physiotherapists scoring higher in biomedical treatment orientation, and those who attended special training or workshops in managing low back pain scoring higher in bio-psychosocial treatment orientation (Figure 1).

Discussion

The primary objective of this study was to delve into the attitudes and beliefs held by Indian physiotherapists concerning the management of NSCLBP. Additionally, this study uncovered the intricate relationship between these attitudes and the specific treatments chosen for addressing NSCLBP. Results from the 107 responses received showed that a majority of participants were male, as shown in Figure 2 and Table 2. The majority of participants agreed on all questions related to the biomedical orientation, while they disagreed on the bio-psycho-social model.



A) Biomedical treatment orientation

B) Bio-psycho-social treatment orientation

Figure 1. The relationship between treatment choice and pain attitudes and beliefs scale for physiotherapists scores (biomedical and bio-psycho-social treatment orientation)

Notes: As a metric of association, the results were shown as odd ratios with 95% CIs. Statistically significant associations are printed in color.

The most commonly used physiotherapy treatments for NSCLBP were found to be electrotherapy, specific back exercises, hot/cold packs, bed rest, spinal traction and spinal mobilization. A robust correlation was observed between the scores on PABS-PT and the participants' characteristics. Meanwhile, recently graduated and intern physiotherapists exhibited a higher proficiency in biomedical treatment orientation when compared to

their counterparts who had undergone specialized training in the treatment of low back pain (Figure 3).

The findings of this study align closely with previous research conducted in various countries, including the UK, Canada, and New Zealand. In those studies, the mean scores for the biomedical and bio-psycho-social subscales were consistently reflected at 30.7 and 43.4, respectively, showcasing a level of consistency across

Table 4. The association between the pain attitudes and beliefs scale for physiotherapists sub-score and the characteristics of physiotherapists

Variables		OR (95% CI)	
		Biomedical Items	Bio-psychosocial Items
Level of education	Intern	0.94(0.93-0.96)*	1.02(0.99-1.14)
	Under graduate	0.96(0.95-0.99)*	1.14(1.04-1.15)
	Post graduate	0.98(0.97-1.02)	0.99(0.97-1.02)
	PhD	0.98(0.95-1.02)	0.98(0.95-1.05)
Work setting	Academic	0.99(0.97-1.02)	1.01(0.97-1.02)
	Clinical	0.98(0.95-1.02)	1.05(0.97-1.06)
	Both	0.99(0.97-1.02)	1.04(1.02-1.08)
	Intern or newly graduated	1.02(1.01-1.04)	-
Experience (y)	1 to 5	0.99(0.97-1.02)	1.15(1.06-1.15)
	6 to 10	0.97(0.97-1.02)	0.99(0.97-1.02)
	>11	0.96(0.95-1.02)	0.98(0.95-1.05)
Attended special training workshop in low back pain	Yes	1.02(0.99-1.14)	0.93(0.92-0.95)*
	No	0.98(0.97- 1.02)	1.14(1.04-1.15)

OR: Odd ratio.

*95% CI was utilized as a measure of association treatment selected by physiotherapists and pain attitudes and beliefs scale for physiotherapists sub-scores biomedical and bio-psychosocial. *P<0.05.

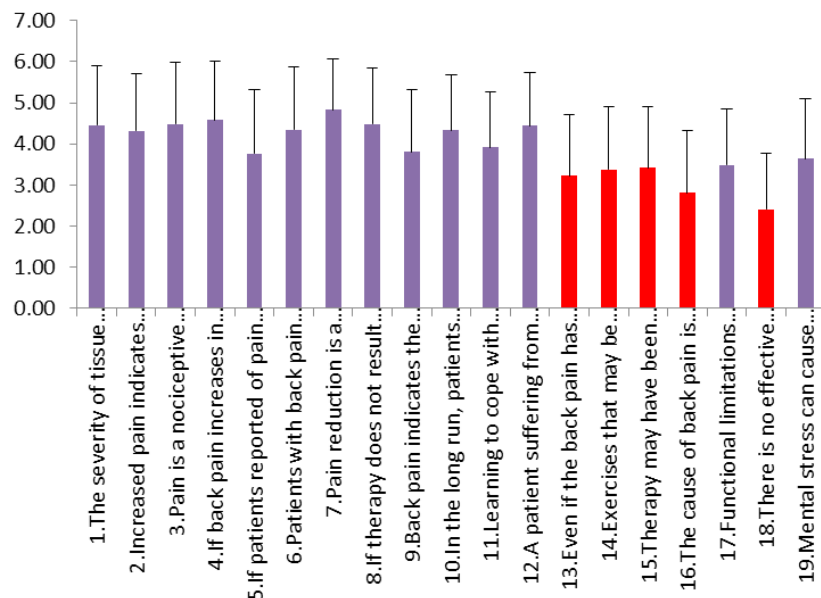


Figure 2. The mean scores for the 19 items on the pain attitudes and beliefs scale for physiotherapists

Table 5. Relationship between pain attitudes and beliefs scale for physiotherapists sub-score and treatment choice

Variables	OR 95% CI	
	Biomedical Items	Bio-psychosocial Items
Bed rest	0.93(0.92-0.95)*	1.02(0.99-1.14)
Lumbar support	0.97(0.95-0.98)*	1.14(1.04-1.15)
Electrotherapy (for example, transcutaneous electrical nerve stimulation)	0.95(0.94-0.97)*	0.99(0.97-1.02)
Hydrotherapy	0.98(0.95-1.02)	0.98(0.95-1.05)
Hot/cold packs	0.93(0.92-0.95)*	1.05(0.97-1.06)
Spinal traction	0.95(0.93-0.97)*	1.01(0.97-1.02)
Spinal mobilization/manipulate	0.96(0.95-0.98)*	1.05(0.97-1.06)
Specific back exercise	0.95(0.94-0.97)*	0.94(0.92-0.95)*
Home exercise	0.93(0.92-0.95)*	0.96(0.95-0.98)*
Physical activity	1.05(0.97-1.06)	0.94(0.93-0.96)*
Pain coping skill training	0.99(0.97-1.02)	1.15(1.06-1.15)
Cognitive functional therapy	0.97(0.97-1.02)	0.99(0.97-1.02)
Mechanical diagnosis and treatment	0.96(0.95-1.02)	0.98(0.95-1.05)
Treatment-based classification	1.14(1.04-1.15)	1.02(0.99-1.14)
Pathoanatomic-based classification	0.98(0.95-1.01)	0.98(0.95-1.01)

OR: Odd ratio.

Notes: *Indicates that an odd ratio with a 95% CI was utilized to quantify the relationship between various participant characteristics and the biomedical and bio-psychosocial pain attitudes and beliefs scale for physiotherapists' sub-scores. *P<0.05.

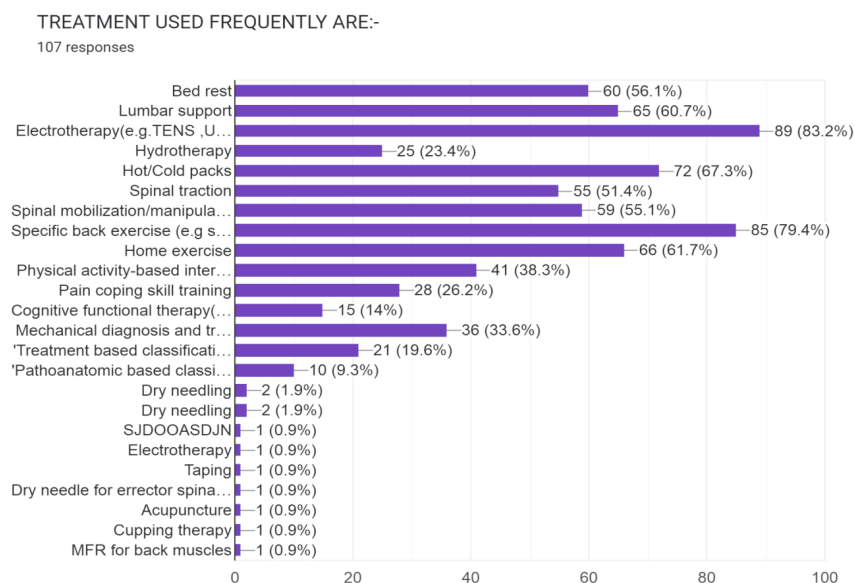


Figure 3. The frequency distribution of physiotherapy treatments for NSCLBP

different geographical contexts [9, 20–22]. However, other studies reported slightly different findings, with some studies reporting a higher score for the bio-psychosocial subscale and a lower score for the biomedical subscale. The relationship between the participant's physiotherapist-specific traits and their biological or bio-psychosocial orientation was investigated in previous studies, with some finding a substantial correlation between the adoption of the biomedical method in the treatment of NSCLBP and the gender and level of expertise of the physiotherapists [23, 24]. In the current study, no significant relationship was uncovered between the bio-psychosocial and biological approaches and participant variables such as sex, age, and years of experience. However, a notable exception emerged, indicating that individuals who had attended a specialized training or workshop in managing low back pain exhibited higher scores about the bio-psychosocial therapeutic orientation.

The results of this study diverged from prior research in terms of the approaches employed by physiotherapists for treating low back pain. Physiotherapists in India exhibited a higher inclination toward treatments like electrotherapy, targeted back exercises, bed rest, and spinal traction. In contrast, physiotherapists in other countries, such as New Zealand and Brazil, tended to favor different therapeutic modalities like spinal mobilization, postural counseling, global posture reeducation, and osteopathy.

The study's strengths lie in being the inaugural examination of physiotherapists' beliefs and attitudes and their correlation with the selected treatments in India. Additionally, the use of the PABS-PT survey showcased a commendable level of reliability in assessing physiotherapists' attitudes and beliefs regarding low back pain. However, it is essential to acknowledge certain limitations, including the use of convenience sampling, which may not accurately represent the entirety of the physiotherapy population.

Conclusion

This study discerned that the attitudes and beliefs of physiotherapists in India regarding NSCLBP predominantly lean toward biomedical aspects. This underscores a potential necessity for additional education and training in the bio-psychosocial approach to pain management, potentially resulting in enhanced treatment outcomes and heightened patient satisfaction. Subsequent research endeavors are warranted to delve deeper into these factors and formulate effective strategies for fos-

tering a more comprehensive approach to pain management among physiotherapists in India.

Ethical Considerations

Compliance with ethical guidelines

This research was approved by the Ethical Committee of Sri Devaraj Urs Academy of Higher Education and Research (Code: DMC/KLR/IEC/92/2022-23).

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Authors' contributions

Data collection, data analysis, methodology, writing and final approval: All authors; Study design: Ayeesha Siddiq; Conceptualization, supervision, interpretation: Naveen Kumar.

Conflict of interest

The authors declared no conflict of interest.

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